
Parent Case Text

This is a Division of Application 10/177,314 entitled "Comprehensive Vehicle Construction And Hybrid Electric Drive System", which was a Continuation-In-Part of my patent application # 09/766,966 (now US Patent 6,425,625) - Rooftop Deck Systems For Vehicles and a Continuation-In-Part of my patent application # 10/142,403 - Seating, Handrails & Canopy For Rooftop Systems.

And it is related to my Amended Application 10/177,314 of 26 August 2003 - retitled Recreational Vehicle Full-Length Slideout System, which too was a Division of the original Application 10/177,314 "Comprehensive Vehicle Construction And Hybrid Electric Drive System".

Elements from my previous US Patent 6,237,988 - Streamline Rooftop Deck For Motorhomes, and from my US Patent 6,425,625 Rooftop Deck Systems For Vehicles.

Claims

This new invention has been described with respect to the preferred embodiments thereof, and it is to be understood that the invention is not limited to such precise forms of the apparatus, and that some or any combination of the elements may be used, and that changes may be made therein without departing from the scope of the invention defined in the appended claims.

I claim:

1 An amphibious recreational vehicle comprising:

a rooftop fold-down flying bridge deck consisting of a bulwarks on multiple sides of the roof top, a plurality of fold-down safety rails on multiple sides of the rooftop, and a plurality of fold-down seating affixed to the rooftop ;

a rooftop steering station within the rooftop fold-down flying bridge deck;

a cabin below the rooftop fold-down flying bridge deck;

an expandable width watertight hull below the cabin which consists of outer-hulls hinged to a central hull, when expanded, forms a one-piece wide-beam modified cathedral planing hull comprising:

a central hull;

an outer-hull on each longitudinal side of the central hull;

a plurality of planing surfaces on the hulls;

a plurality of land travel wheels within the outer-hulls;

a hinge mechanism coupling the outer-hulls as to be pivotally positioned under the central hull for land travel, and positioned adjacent to the central hull for water travel while also raising the land travel wheels out of the water;

a powered actuator to pivot the hulls between the land travel and water travel positions where the powered actuator is fully above the waterline for water travel;

a ground effects lifting tunnel between the hulls;

and a provision for marine propulsion.

2. The amphibious vehicle of Claim 1, wherein a movable tapering device reduces the cross-sectional area in the rearward portion of the ground effects lifting tunnel to increase dynamic lift.
3. The amphibious vehicle of Claim 1, wherein one or more hydrofoils under the central hull are positioned to allow the outer-hulls to pivot without interference with the hydrofoils.
4. The amphibious vehicle of Claim 1, wherein the vehicle is a towable travel trailer.
5. The amphibious vehicle of Claim 1, wherein the vehicle is a motorhome.
6. The amphibious vehicle of Claim 1, wherein the vehicle is a truck, van, bus, and the like.
7. The amphibious vehicle of Claim 1, wherein the flying bridge has a fold-down windshield.
8. The amphibious vehicle of Claim 1, wherein the flying bridge has a fold-down mast array.
9. The amphibious vehicle of Claim 1, wherein a rear boarding deck with an affixed deployable stairway provides a means for access from the ground to the cabin when the vehicle is on land.
10. The amphibious vehicle of Claim 1, wherein a marine propulsion unit is located within the hull(s).
11. The amphibious vehicle of Claim 1, wherein it is a motorhome, truck, van, bus or the like, where each of the land travel wheels are modular & interchangeable Universal-Motor Power Suspension Modules, each being powered with an integral electric drive motor-regenerative braking generator, and where the marine propulsion source is powered by electric motors that are all cabled to a central energy source of Energy Storage Units (batteries, capacitors, and the like) and a multiplicity of Gensets (generators, alternators, fuel

cells, solar cells, and the like);

and all coupled by means of a central controller for providing individualized current flow between motors and energy sources with a protocol of operating the minimum number of Gensets at any one time as is adequate for meeting the current energy demands of the Energy Storage Units and the motors, and where the Energy Storage Units and the Gensets act in series-parallel for extreme incremental peak demands of the motors;

and where each Universal-Motor Power Suspension Module is comprised of:

the integral electric drive motor-regenerative braking generator;
a wheel, disc brake, and tire;
a means of independent suspension;
a pivot means for directionally steering the wheel;
a link means for locking the direction of the wheel steering to one position;
an adjustable wheel-to-vehicle ride-height means;

and where the Universal-Motor Power Suspension Modules are interchangeably used on both sides of the vehicle.

12. The amphibious vehicle of Claim 1, where the rooftop fold-down flying bridge deck has a raising and lowering cover, which in the lowered position covers the flying bridge deck and when raised is a canopy to protect the occupants from the sun and rain.
13. The amphibious vehicle of Claim 1, where the vehicle has an an interior space expanding slide-out on one or more sides of the cabin.
14. An amphibious recreational vehicle comprising:

a recreational vehicle cabin;

an expandable width watertight hull below the cabin which consists of outer-hulls hinged to a central hull, when expanded, forms a one-piece wide-beam modified cathedral planing hull comprising:

a central hull;

an outer-hull on each longitudinal side of the central hull;

a plurality of planing surfaces on the hulls;

a plurality of land travel wheels within the outer hulls;

a hinge mechanism coupling the outer-hulls as to be pivotally positioned under the central hull for land travel, and positioned adjacent to the central hull for water travel

while also raising the land travel wheels out of the water;

a powered actuator to pivot the hulls between the land travel and water travel positions where the powered actuator is fully above the waterline for water travel;

a ground effects lifting tunnel between the hulls;

a movable tapering device to reduce the cross-sectional area in the rearward portion of the ground effects lifting tunnel to increase dynamic lift;

and a provision for marine propulsion.

15. The amphibious vehicle of Claim 14, wherein upon the cabin rooftop is a fold-down flying bridge deck consisting of bulwarks on multiple sides of the roof top, a plurality of fold-down safety rails on multiple sides of the rooftop, a rooftop steering station, and a plurality of fold-down seating affixed to the rooftop;
16. The amphibious vehicle of Claim 14, wherein one or more hydrofoils under the central hull are positioned to allow the outer-hulls to pivot without interference with the hydrofoils.
17. The amphibious vehicle of Claim 14, wherein the vehicle is a towable travel trailer.
18. The amphibious vehicle of Claim 14, wherein the vehicle is a motorhome.
19. The amphibious vehicle of Claim 14, wherein the vehicle is a truck, van, bus, and the like.
20. An amphibious land vehicle comprising:

a land vehicle body (car, truck, travel trailer, motorhome, bus, and the like);

an expandable width watertight hull below the body which consists of outer-hulls hinged to a central hull, when expanded, forms a one-piece wide-beam modified cathedral planing hull comprising:

a central hull;

an outer-hull on each longitudinal side of the central hull;

a plurality of planing surfaces on the hulls;

a plurality of land travel wheels within the outer-hulls;

a hinge mechanism coupling the outer-hulls as to be pivotally positioned under the central hull for land travel, and positioned adjacent to the central hull for water travel

while also raising the land travel wheels out of the water;

a powered actuator to pivot the hulls between the land travel and water travel positions where the powered actuator is fully above the waterline for water travel;

a ground effects lifting tunnel between the hulls;

a movable tapering device to reduce the cross-sectional area in the rearward portion of the ground effects lifting tunnel to increase dynamic lift;

and a provision for marine propulsion.

21. The amphibious vehicle of Claim 20, wherein upon the land vehicle body rooftop is a fold-down flying bridge deck consisting of bulwarks on multiple sides of the roof top, a plurality of fold-down safety rails on multiple sides of the rooftop, a rooftop steering station, and a plurality of fold-down seating affixed to the rooftop.
22. The amphibious vehicle of Claim 20, wherein one or more hydrofoils under the central hull are positioned to allow the outer-hulls to pivot without interference with the hydrofoils.
23. The amphibious vehicle of Claim 20, wherein the land drive wheels and marine propulsion units are powered by their individual motors, which are all cabled to a central energy source of Energy Storage Units (batteries, capacitors, and the like) and a multiplicity of Gensets (generators, alternators, fuel cells, solar cells, and the like), so coupled by a central controller to provide individualized current flow between motors and energy sources with a protocol of operating the minimum number of Gensets at any one time as adequate for meeting the current energy demands of the Energy Storage Units and the motors, and where the Energy Storage Units and the Gensets act in series-parallel for extreme incremental peak demands of the motors.